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SHARP 14LV76 SIGMA 9100 CHASSIS SERVICE MANUAL

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SHARP SERVICE MANUAL

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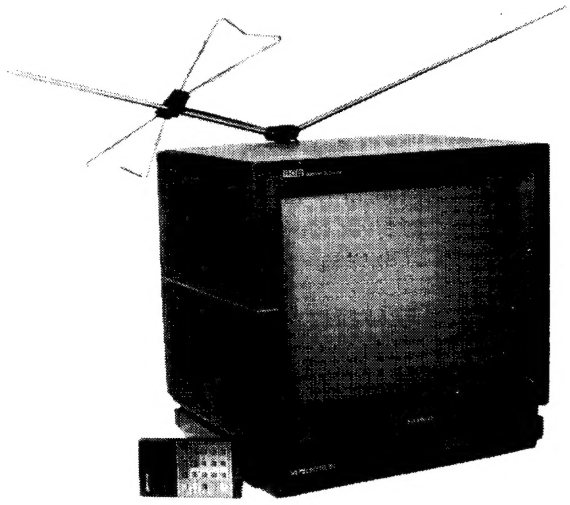

COLOR TELEVISION
SIGMA 9100 CHASSIS

Chassis No. 14L1

MODEL 14LV76

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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IMPORTANT SERVICE SAFETY PRECAUTION

■ Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and servicing guidelines which follow:

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the receiver is operating.
4. The chassis in this receiver has two ground systems which are separated by insulation material. The non-isolated (hot) ground system is for the +B voltage regulater circuit and the horizontal output circuit. The isolated ground system is for the low +B DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10 k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC cord should be disconnected from AC outlet.)

1. Note that the picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. All service personnel should be aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation if the high voltage is as specified in the "High Voltage Check" instructions. It is only when high voltage is excessive that X-radiation is capable of penetrating the picture tube shell which includes lead in glass material. The important precaution is to keep high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value — no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and, under certain conditions, may produce radiation in excess of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring high voltage with a meter to be certain that it does not exceed the specified value and is regulated correctly.
5. Do not use a picture tube other than that specified, and do not make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessively high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

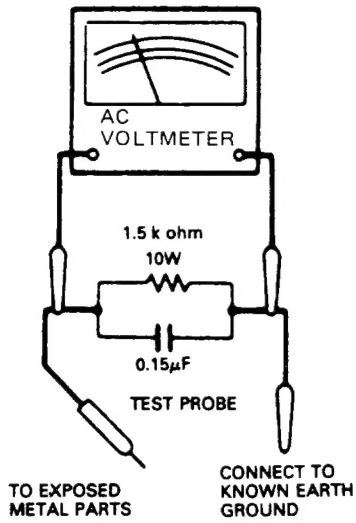
FIRE AND SHOCK HAZARD CHECKS

Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for current leakage in the following manner:

- Plug the AC cord directly into a 120-volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5 k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as an electrical conduit or electrical ground connected to an earth ground.
- Use a AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Make contact with the test probe on all exposed metal parts having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  All checks must be repeated with the AC cord plug connection reversed (if necessary, a non-polarized adapter plug may be used only for the purpose of completing these checks).
  Any current measured must not exceed 0.5 milliamps.
  Any measurements not within the limits outlined above are indicative of potential shock hazard and corrective action must be taken before returning the set to the customer.

IMPORTANT SERVICE SAFETY PRECAUTION (Continued)



SAFETY NOTICE

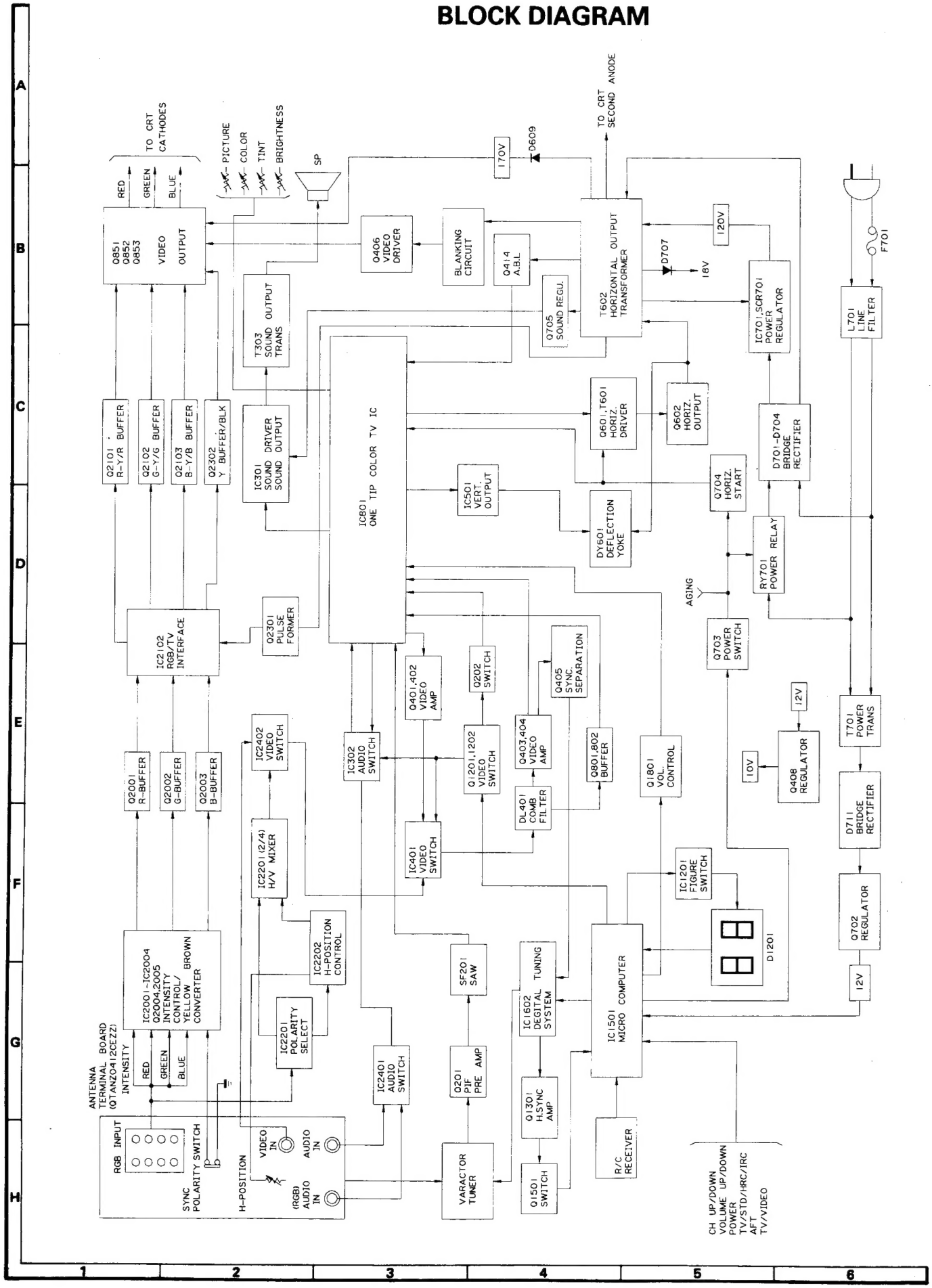
Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams. For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

ELECTRICAL SPECIFICATIONS

VHF ANTENNA INPUT IMPEDANCE	75 ohm unbalanced
UHF ANTENNA INPUT IMPEDANCE	300 ohm balanced
CONVERGENCE	Magnetic
FOCUS	Hi-Bi-Potential Electrostatic
AUDIO POWER OUTPUT RATING	0.85 Watt (at 10 % distortion)
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency	45.75 MHz
Sound IF Carrier Frequency	41.25 MHz
Color Sub-Carrier Frequency	42.17 MHz (Nominal)
PICTURE SIZE	94 sq. in.
POWER INPUT	120 volts AC 60Hz
POWER RATING	80 watts
SPEAKER SIZE	3" PM 0.34 oz. Magnet
VOICE COIL IMPEDANCE	16 ohm at 400 Hz
SWEEP DEFLECTION	Magnetic
TUNING RANGES	VHF-Channels 2 thru 13 UHF-Channels 14 thru 83 CATV Channels 2 thru 36, 95 thru 99 (EIA, Channel Plan)

BLOCK DIAGRAM



INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdriver or TV alignment tools.
(2) Before perfoming adjustment, TV set must be on at least 15 minutes.

CIRCUIT PROTECTION
The entire receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

+120V DC REGULATOR ADJUSTMENT
The +120V DC Adj. control (R711) is adjusted at the factory. However, should readjustment be required, proceed as follows:

1. Set the Brightness control (a Part of R462) and Picture control (a Part of R462) to maximum (CW) ends of their rotations.
2. Connect positive lead of Voltmeter to TP701 on PWB-A; negative lead to chassis ground.
3. Adjust R711 to obtain a +120V DC reading.
   CAUTION: To insure proper operation and circuit reliability, do not exceed +120V DC.

X-RADIATION PROTECTOR CIRCUIT TEST
After service has been performed on the horizontal deflection system, high voltage system, or +B system, the X-Radiation protection circuit must be tested for proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Check the voltage of test points TP601 and TP603. (The voltage of these points should be about 17.7V DC and 18.3V DC respectively.)
4. Connect the cathode of diode D502 with TP601 through a short clip lead. When these points are connected, the operation of horizontal oscillator stops.
5. To start operation, remove the above short clip lead and touch the TP602 to chassis ground (TP604) with a short clip lead. (Remove short clip lead as soon as the set operates again with a normal picture.) Connect TP603 to cathode of diode D502, and see that the operation of horizontal oscillator then stops.
6. If the operation of the horizontal osc. does not stop in steps 4 and 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK
High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter to CRT anode.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with strong air signal or properly tuned in test signal.
3. Set SW2301 on PWB-C to "off" position.
   Note that a loss of luminescence will occur.
4. Rotate Screen control (on T602) to maximum (CCW) end of its rotation.
5. The reading should be approximately 23.5kV (at zero beam)

If a correct reading cannot be obtained, check circuitry for malfunctioning components. Upon completion of voltage check, readjust Screen control for proper operation and set SW2301 to "on" position.

Field Adjustment
RF. AGC. Adjustment
(1) Select a local channel.
(2) Place AFT switch in "off" position.
(3) Turn RF AGC control (R214) fully clockwise until snow and/or noise appear in picture, then slowly turn control counter clockwise until snow and/or noise disappear.
(4) Check all other channels.

Sound
(1) Select a local channel.
(2) Place AFT switch in "off" position.
(3) Adjust volume control to mid-position.
(4) Adjust sound det. coil (L303) to obtain good clear sound.

Horizontal Position Adjustment
(1) Select a local channel.
(2) Adjust horizontal position switch (SW601) to stabilize picture.
(3) Check all channels for a stabilized picture.

Sub-Brightness Control
(1) Select a local channel.
(2) Turn picture control and set brightness control to the center position.
(3) Turn sub-brightness control (a part of R462) to obtain normal brightness of the picture.

INSTALLATION AND SERVICE INSTRUCTIONS (Continued)

R/G/B Cut-off Adjustment

(1) Place the unit in video mode using TV/Video switch (SW1105).
(2) Place the unit in RGB mode using Video/RGB switch (SW1109).
(3) Turn picture control (a part of R462) to the minimum (CCW) end of this rotation.
(4) Set R2135, R2136 and R2129 at the minimum (CCW) position, and turn R2129 until the green is slightly illuminated.
(5) Turn R2135 and R2136 to obtain white raster.
(6) Turn R2129 until picture is cut off.

Vertical Size Adjustment

(1) Select a local channel.
(2) Check brightness and picture controls for a normal picture.
(3) Adjust vertical size control (R514) for approximately one-half inch over scan at top and bottom of picture screen.

Focus Adjustment

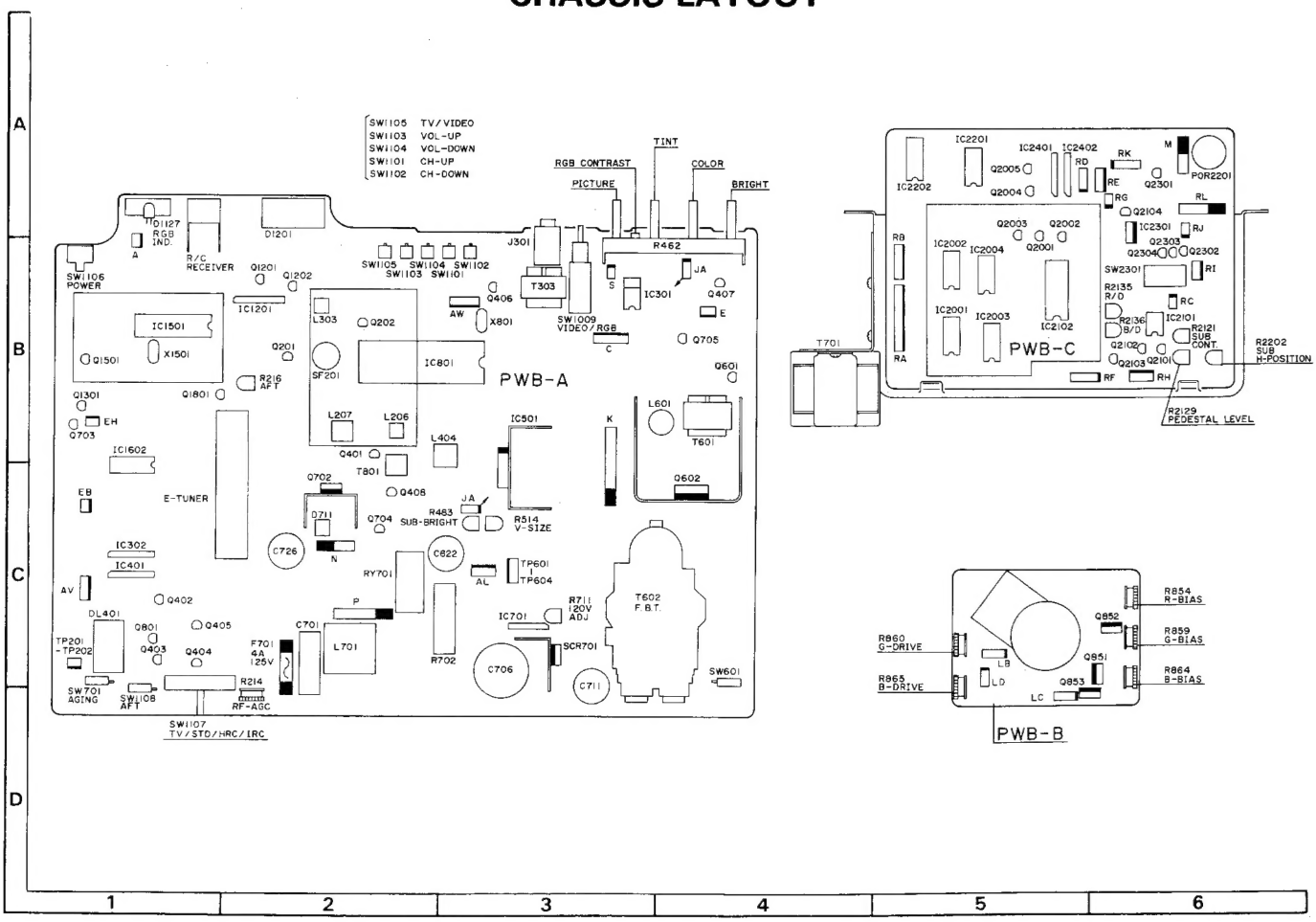
(1) Select a local channel.
(2) Set brightness and picture control at a normal viewing level.
(3) Adjust focus control (part of T602) for sharp scanning lines and/or sharp picture.

NOTE 1: All field adjustments mentioned can be performed without test equipment.

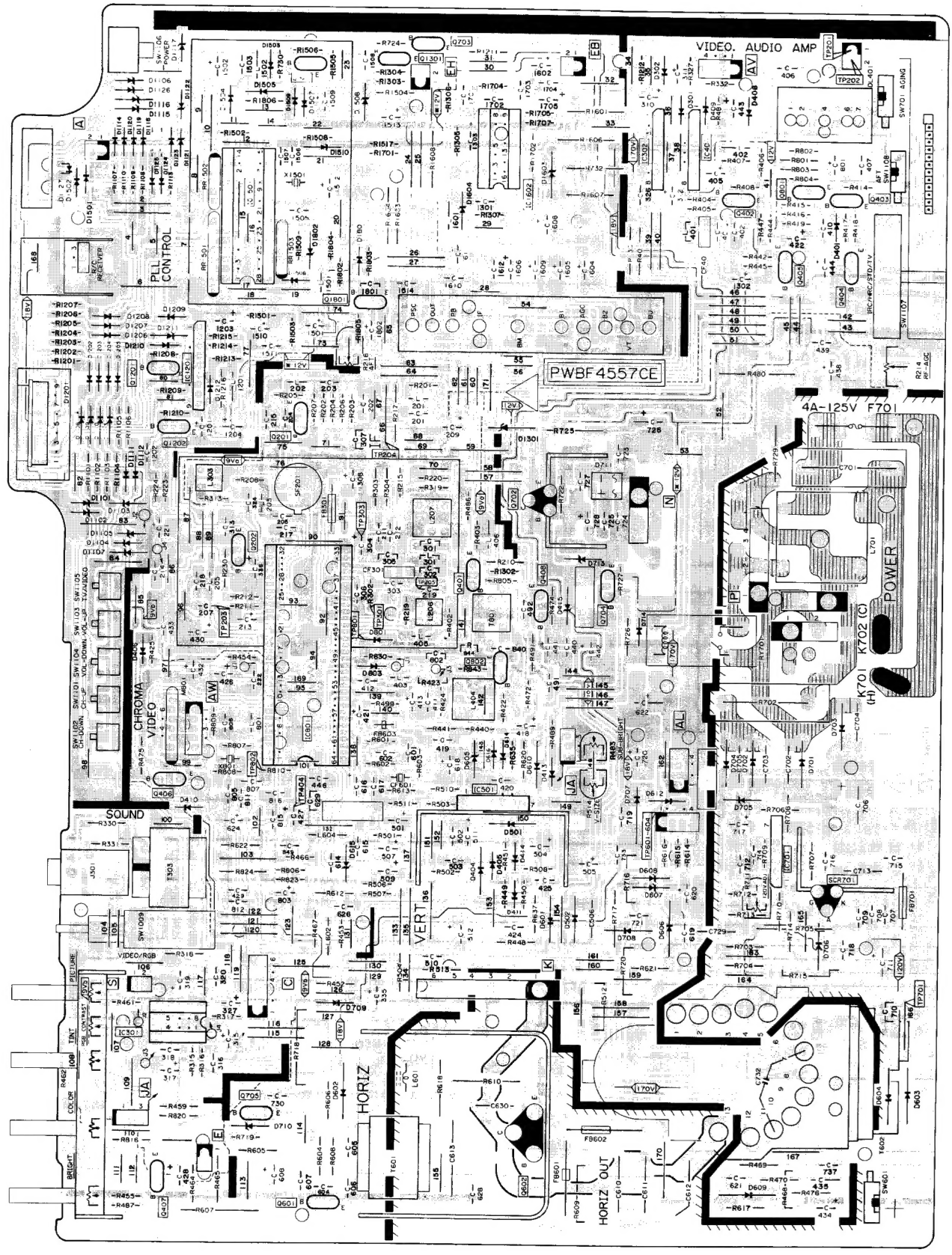
NOTE 2: The AFT switch is employed for the following purpose. When connecting a VCR or video game equipment to the antenna terminals of this TV and when the RF output frequency of these video equipments deviates from the normal TV channel frequency, this freqency deviation can be corrected by setting the AFT switch to the "ON" position. Usually the AFT switch should be set the "ON" position.

NOTE 3: After servicing the set, check that the aging SW701 is set at "off" position. This aging switch is to be used only for the factory inspection: at "on" position, it won't allow the set to be turned off.

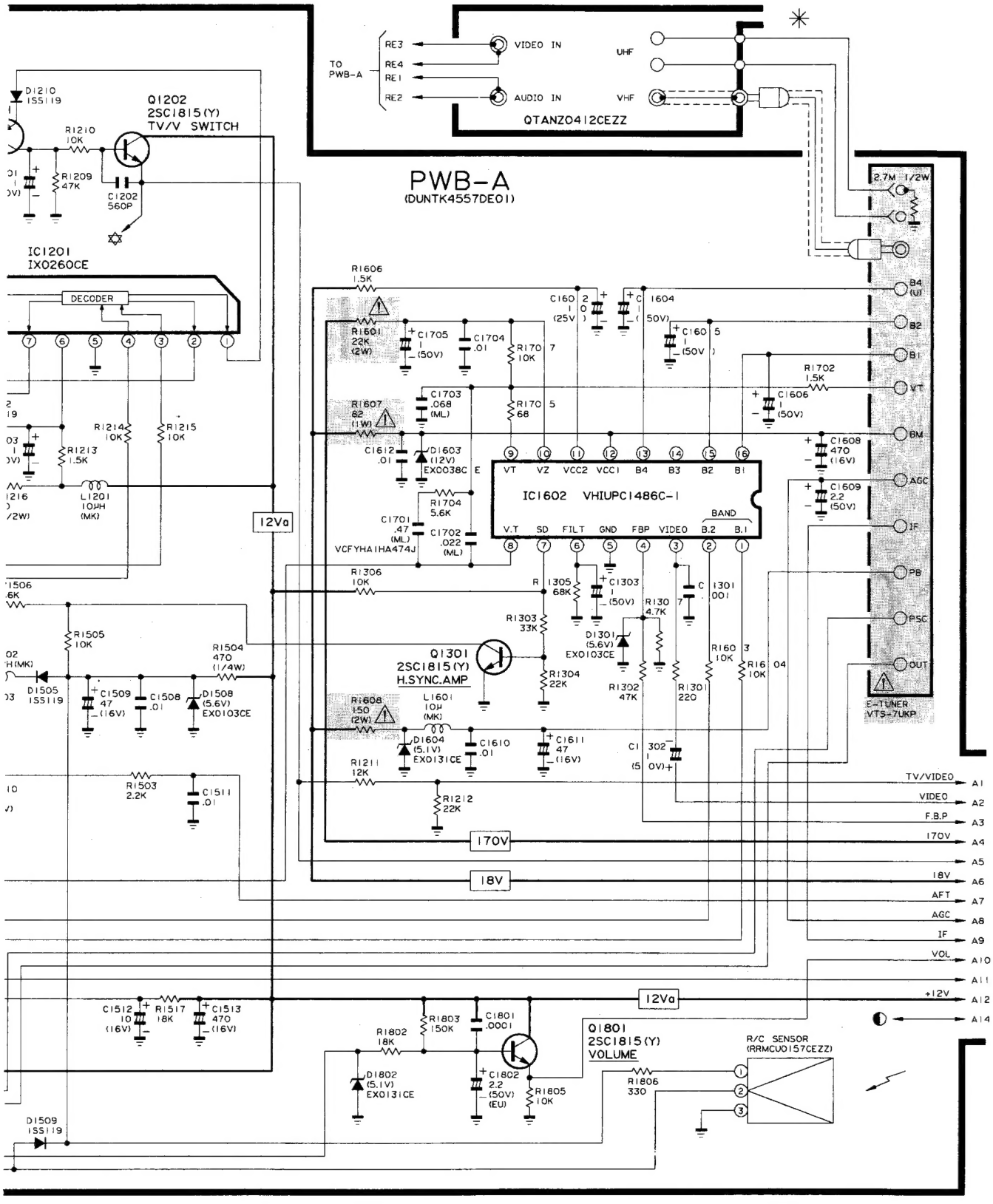
CHASSIS LAYOUT



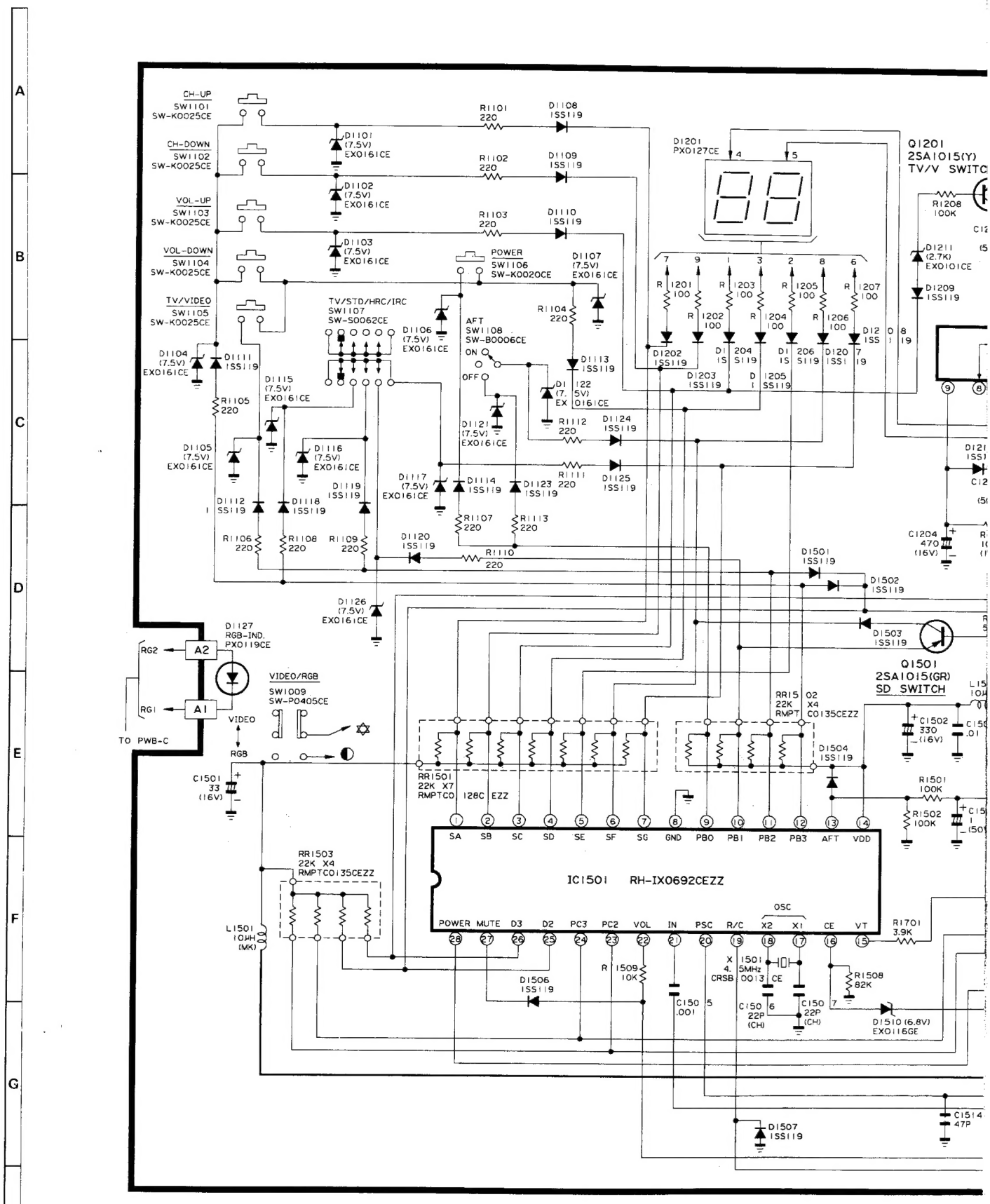
PRINTED WIRING BOARD ASSEMBLIES

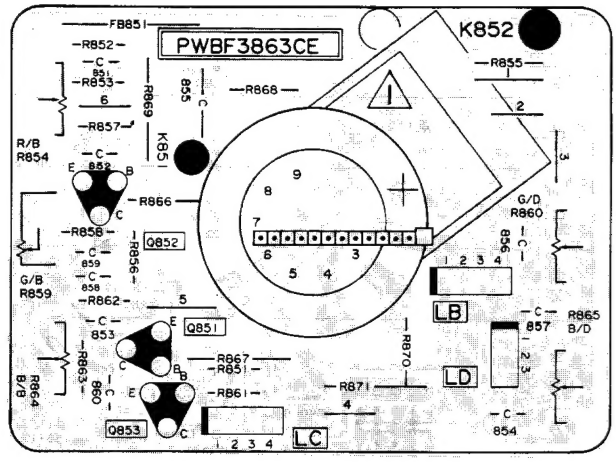


PWB-A Wiring Side

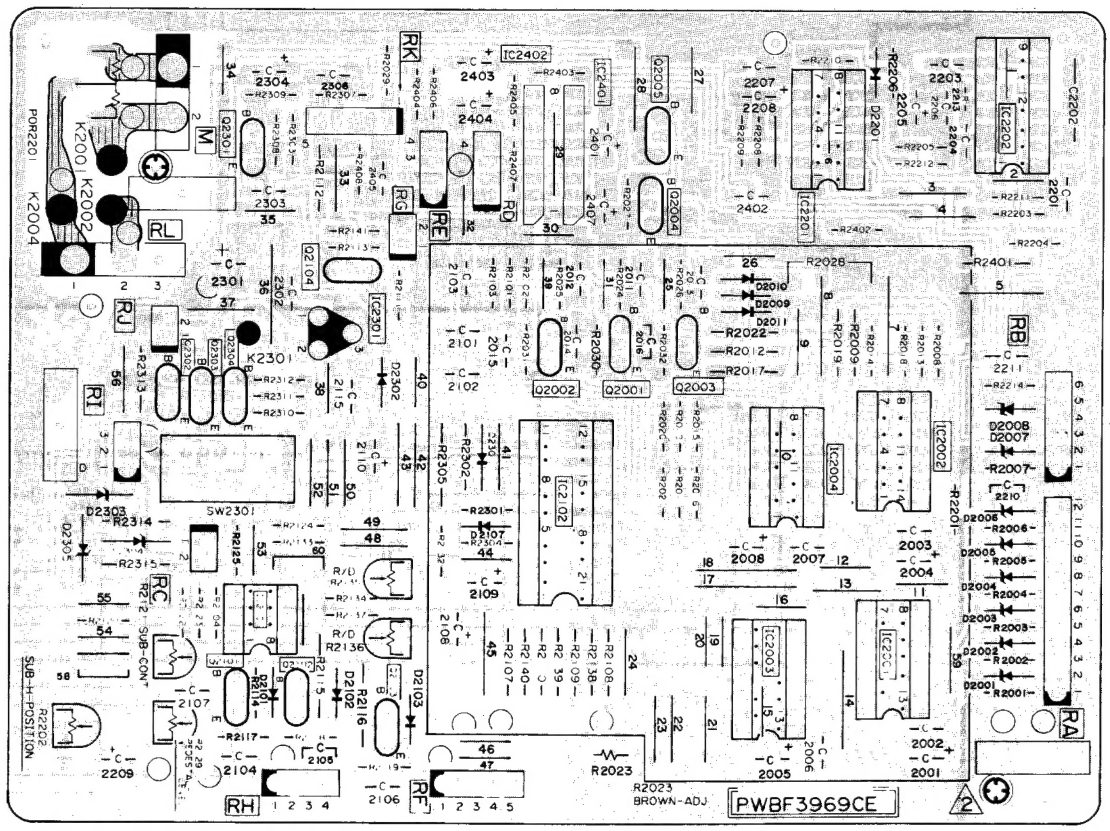

PWB-A
(DUNTK4557DE01)
QTANZ0412CEZZ
TO PWB-A
RE3
RE4
RE1
RE2
VIDEO IN
AUDIO IN
UHF
VHF
Q1202
2SC1815(Y)
TV/V SWITCH
D1210
1SS119
R1210
10K
R1209
47K
C1202
560P
IC1201
IX0260CE
DECODER
R1214
10K
R1215
10K
R1213
1.5K
L1201
10μH
(MK)
12Va
R1506
R1505
10K
R1504
470
(1/4W)
D1505
1SS119
C1509
47
(16V)
C1508
.01
D1508
(5.6V)
EX0103CE
R1503
2.2K
C1511
.01
C1512
10
(16V)
R1517
18K
C1513
470
(16V)
D1509
1SS119
R1606
1.5K
R1601
22K
(2W)
C1705
1
(50V)
C1704
.01
R1707
10K
C1602
10
(25V)
C1604
1
(50V)
C1605
1
(50V)
R1607
82
(1W)
C1703
.068
(ML)
R1705
68
C1612
.01
D1603
(12V)
EX0038CE
R1704
5.6K
C1701
.47
(ML)
VCFYHA1HA474J
C1702
.022
(ML)
R1702
1.5K
C1606
1
(50V)
C1608
470
(16V)
C1609
2.2
(50V)
IC1602 VHIUPC1486C-1
VT VZ VCC2 VCC1 B4 B3 B2 B1
V.T SD FILT GND FBP VIDEO B.2 B.1
BAND
R1306
10K
R1305
68K
C1303
1
(50V)
C1301
.001
R1303
33K
R1304
22K
Q1301
2SC1815(Y)
H.SYNC.AMP
D1301
(5.6V)
EX0103CE
R1302
47K
R1301
220
R1603
10K
R1604
10K
R1608
150
(2W)
L1601
10μ
(MK)
D1604
(5.1V)
EX0131CE
C1610
.01
C1611
47
(16V)
C1302
1
(50V)
R1211
12K
R1212
22K
170V
18V
2.7M 1/2W
B4 (U)
B2
B1
VT
BM
AGC
IF
PB
PSC
OUT
E-TUNER
VTS-7UKP
TV/VIDEO A1
VIDEO A2
F.B.P A3
170V A4
A5
18V A6
AFT A7
AGC A8
IF A9
VOL A10
A11
+12V A12
A14
12Va
R1803
150K
C1801
.0001
R1802
18K
D1802
(5.1V)
EX0131CE
C1802
2.2
(50V)
(EU)
R1805
10K
Q1801
2SC1815(Y)
VOLUME
R1806
330
R/C SENSOR
(RRMCU0157CEZZ)

	7	8	9	10	11	12


CH-UP SW1101 SW-K0025CE
CH-DOWN SW1102 SW-K0025CE
VOL-UP SW1103 SW-K0025CE
VOL-DOWN SW1104 SW-K0025CE
TV/VIDEO SW1105 SW-K0025CE
POWER SW1106 SW-K0020CE
TV/STD/HRC/IRC SW1107 SW-S0062CE
AFT SW1108 SW-B0006CE
ON
OFF
D1201 PX0127CE
Q1201 2SA1015(Y) TV/V SWITC
Q1501 2SA1015(GR) SD SWITCH
D1127 RGB-IND. PX0119CE
VIDEO/RGB SW1009 SW-P0405CE
TO PWB-C
RG2
RG1
A2
A1
VIDEO
RGB
IC1501 RH-IX0692CEZZ
SA SB SC SD SE SF SG GND PB0 PB1 PB2 PB3 AFT VDD
POWER MUTE D3 D2 PC3 PC2 VOL IN PSC R/C X2 X1 CE VT
OSC
RR1501 22K X7 RMPTC0128C EZZ
RR1502 22K X4 RMPTC0135CEZZ
RR1503 22K X4 RMPTC0135CEZZ
L1501 10uH (MK)
X1501 4.5MHz CRSB0013CE
D1510 (6.8V) EX0116GE
D1507 ISS119
C1514 47P

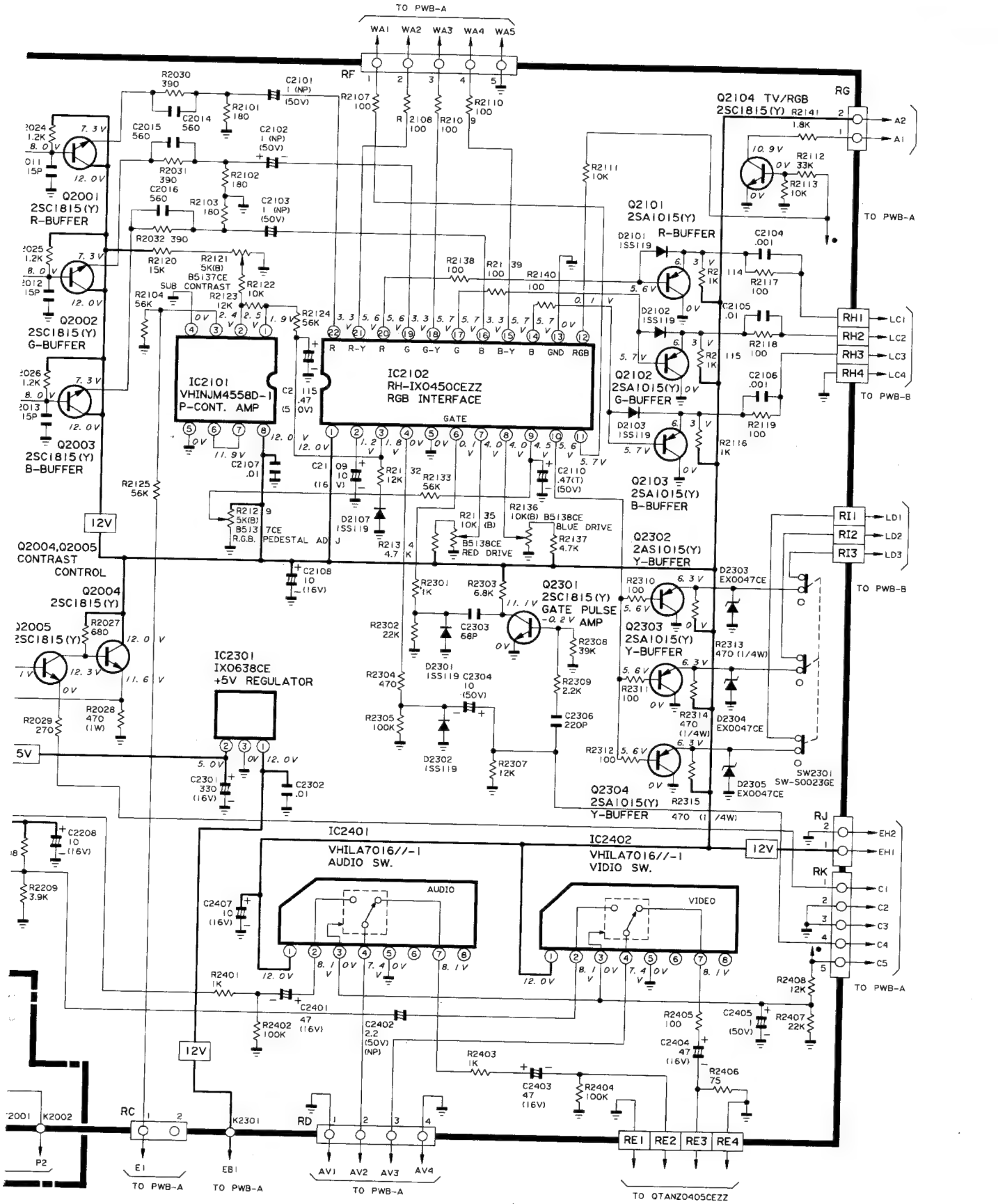


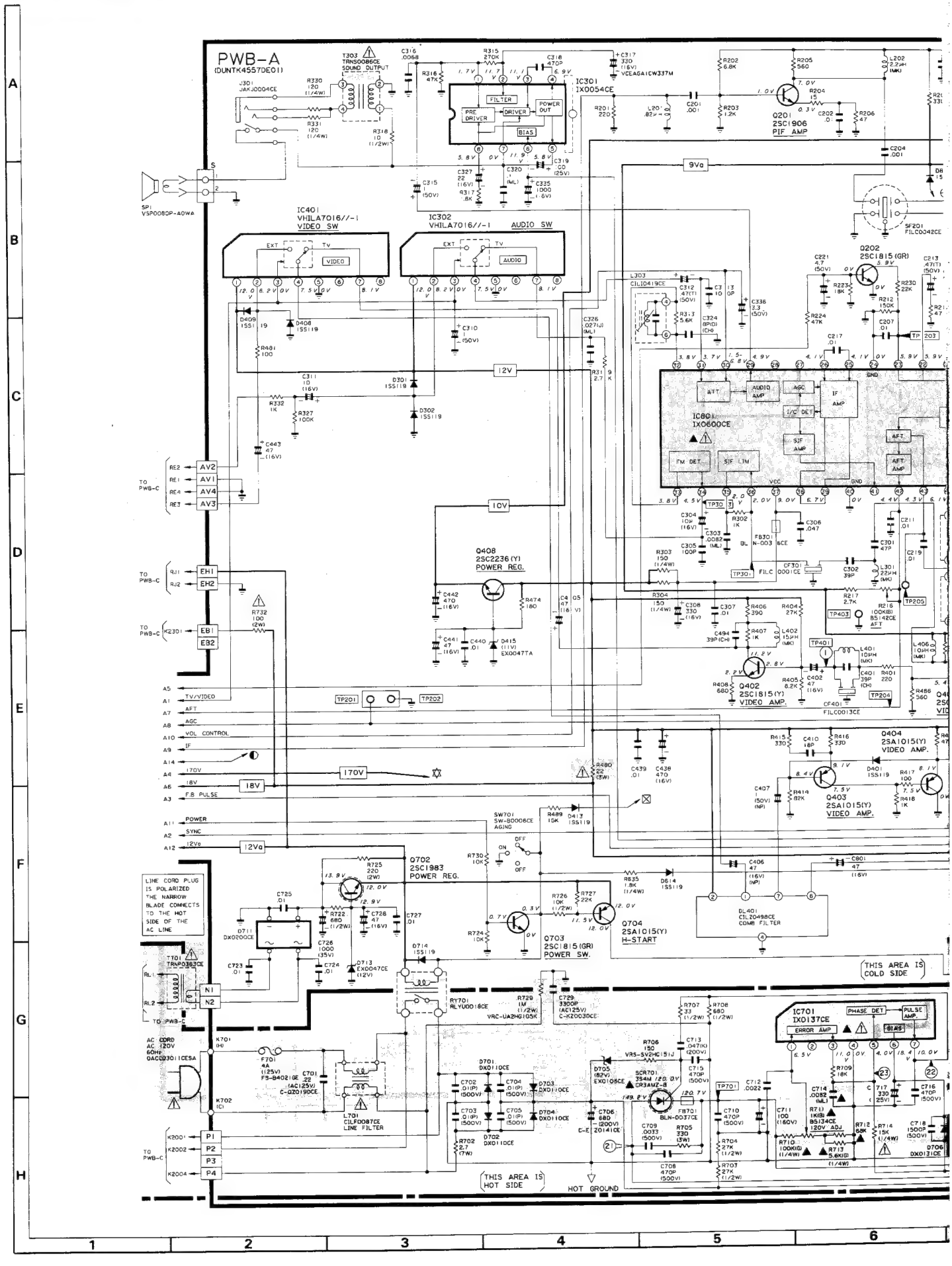
PWB-B Wiring Side

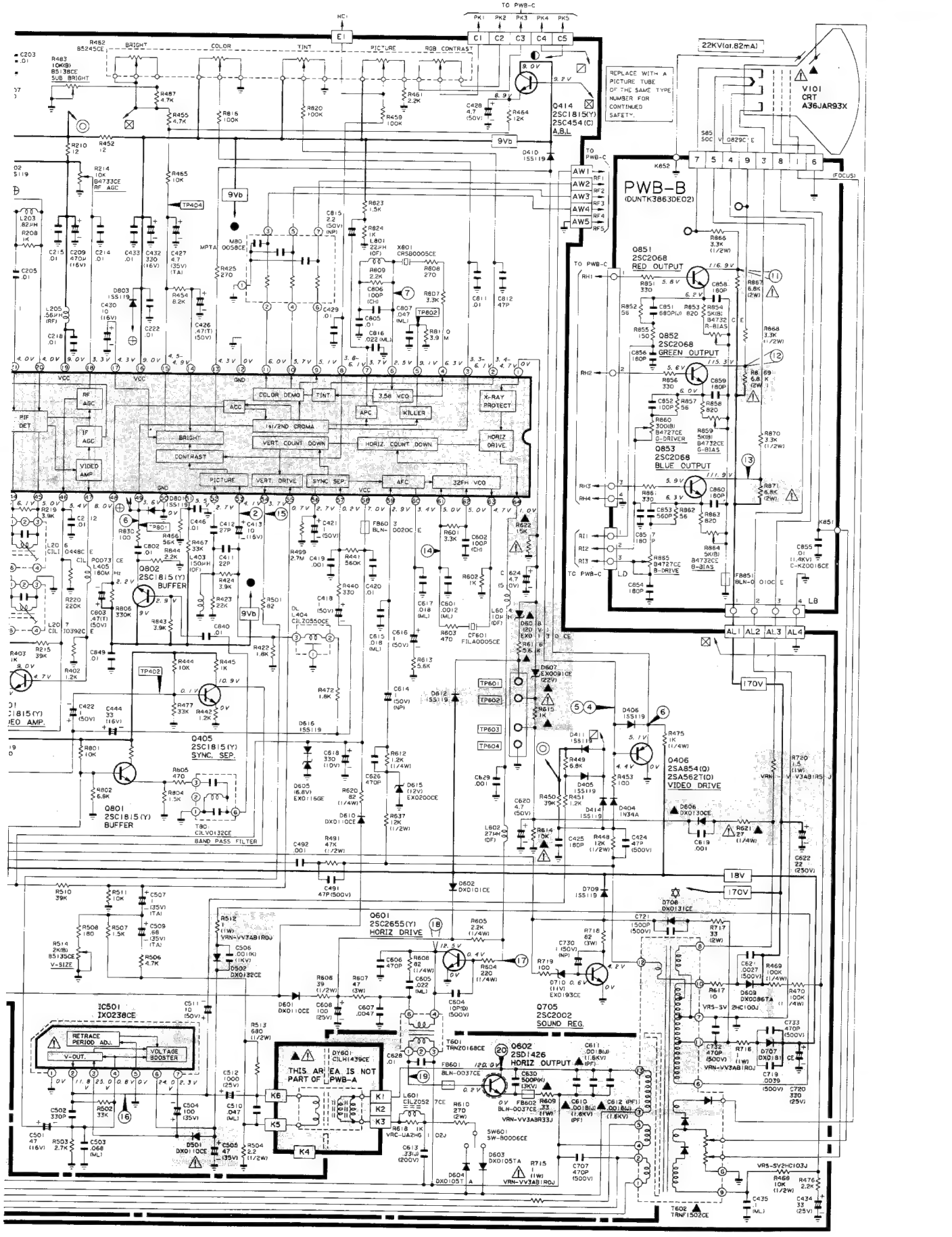


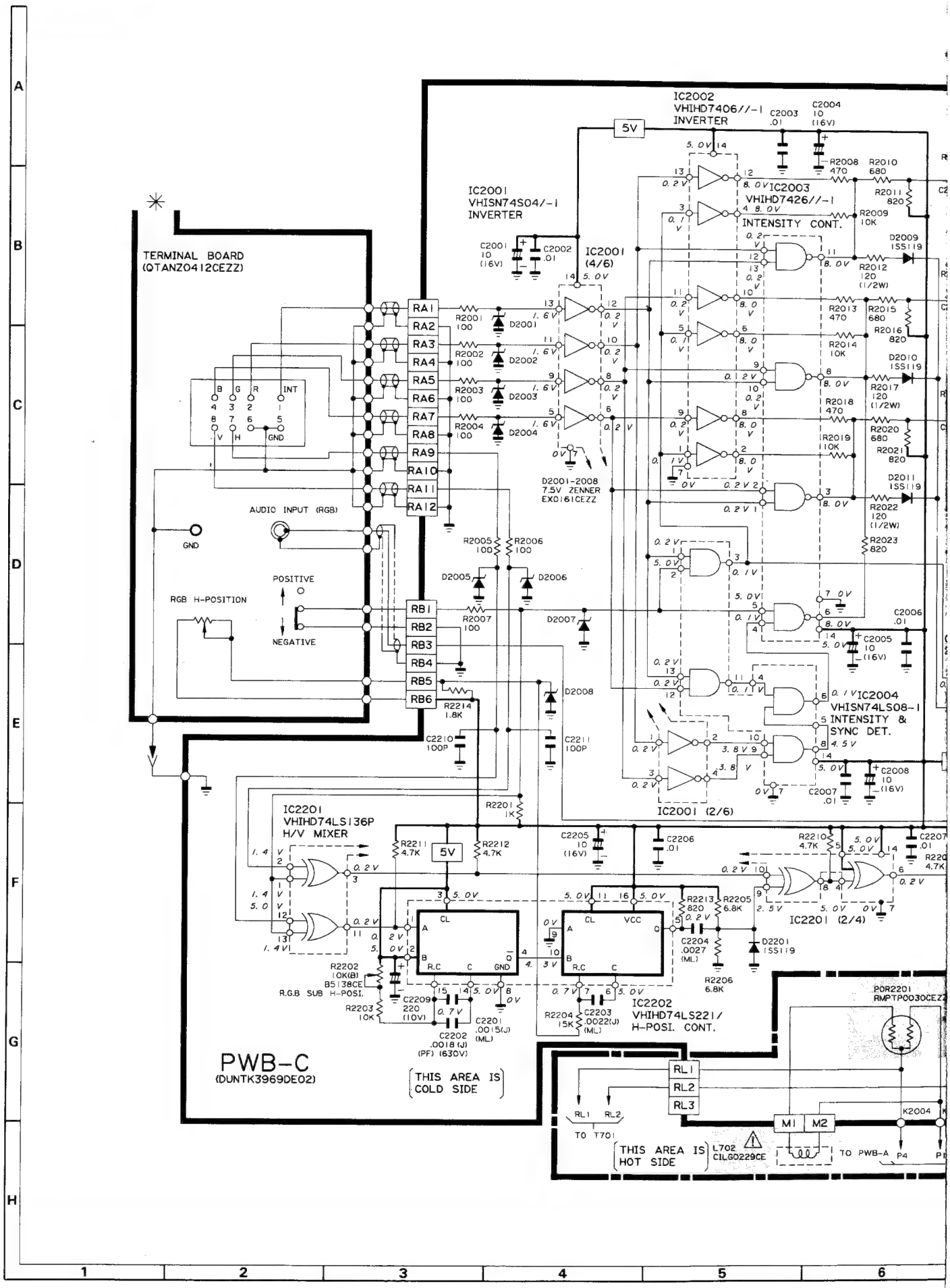
PWB-C Wiring Side

7	8	9	10	11	12


TO PWB-A
WA1 WA2 WA3 WA4 WA5
RF
Q2001 2SC1815(Y) R-BUFFER
Q2002 2SC1815(Y) G-BUFFER
Q2003 2SC1815(Y) B-BUFFER
IC2101 VHINJM4558D-1 P-CONT. AMP
IC2102 RH-IX0450CEZZ RGB INTERFACE
R R-Y R G G-Y G B B-Y B GND RGB
GATE
SUB CONTRAST
B5137CE
Q2004,Q2005 CONTRAST CONTROL
Q2004 2SC1815(Y)
Q2005 2SC1815(Y)
B5138CE RED DRIVE
B5138CE BLUE DRIVE
R.G.B. PEDESTAL ADJ
Q2104 TV/RGB 2SC1815(Y)
Q2101 2SA1015(Y) R-BUFFER
Q2102 2SA1015(Y) G-BUFFER
Q2103 2SA1015(Y) B-BUFFER
Q2302 2SA1015(Y) Y-BUFFER
Q2303 2SA1015(Y) Y-BUFFER
Q2304 2SA1015(Y) Y-BUFFER
Q2301 2SC1815(Y) GATE PULSE AMP
IC2301 IX0638CE +5V REGULATOR
IC2401 VHILA7016//-1 AUDIO SW.
IC2402 VHILA7016//-1 VIDIO SW.
AUDIO
VIDEO
SW2301 SW-S0023GE
D2303 EX0047CE
D2304 EX0047CE
D2305 EX0047CE
RG
RH1 RH2 RH3 RH4
RI1 RI2 RI3
RJ
RK
RC
RD
RE1 RE2 RE3 RE4
A2 A1
LC1 LC2 LC3 LC4
LD1 LD2 LD3
EH2 EH1
C1 C2 C3 C4 C5
12V
5V
TO PWB-A
TO PWB-B
TO QTANZ0405CEZZ
P2
E1
EB1
AV1 AV2 AV3 AV4


PWB-A
(DUNTK4557DE01)
IC301
IX0054CE
Q201
2SC1906
PIF AMP
IC401
VHILA7016//-1
VIDEO SW
IC302
VHILA7016//-1
AUDIO SW
Q202
2SC1815(GR)
IC801
IX0600CE
Q408
2SC2236(Y)
POWER REG.
Q402
2SC1815(Y)
VIDEO AMP.
Q404
2SA1015(Y)
VIDEO AMP.
Q403
2SA1015(Y)
VIDEO AMP.
Q702
2SC1983
POWER REG.
Q704
2SA1015(Y)
H-START
Q703
2SC1815(GR)
POWER SW.
IC701
IX0137CE
9Va
12V
10V
170V
18V
12Va
LINE CORD PLUG IS POLARIZED THE NARROW BLADE CONNECTS TO THE HOT SIDE OF THE AC LINE
THIS AREA IS COLD SIDE
THIS AREA IS HOT SIDE
HOT GROUND

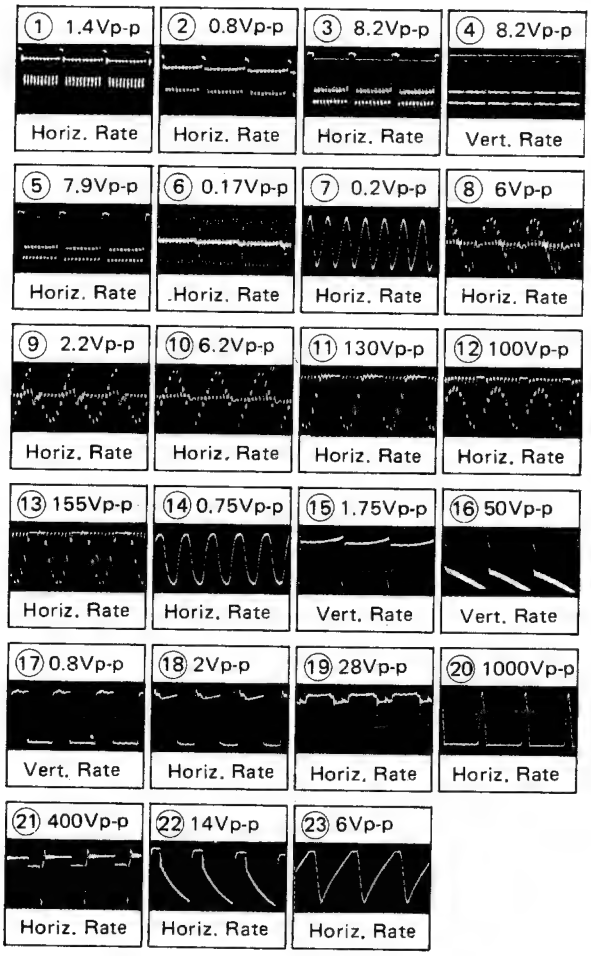

PWB-B
(DUNTK3863DE02)
TO PWB-C
22KV(at.82mA)
V101
CRT
A36JAR93X
REPLACE WITH A PICTURE TUBE OF THE SAME TYPE NUMBER FOR CONTINUED SAFETY.
Q851
2SC2068
RED OUTPUT
Q852
2SC2068
GREEN OUTPUT
Q853
2SC2068
BLUE OUTPUT
Q414
2SC1815(Y)
2SC454(C)
A,B,L
Q802
2SC1815(Y)
BUFFER
Q801
2SC1815(Y)
BUFFER
Q405
2SC1815(Y)
SYNC. SEP.
Q406
2SA854(Q)
2SA562T(O)
VIDEO DRIVE
0601
2SC2655(Y)
HORIZ DRIVE
Q705
2SC2002
SOUND REG.
0602
2SD1426
HORIZ OUTPUT
IC501
IX0238CE
THIS AREA IS NOT PART OF PWB-A
RETRACE PERIOD ADJ.
V-OUT.
VOLTAGE BOOSTER
V-SIZE
BAND PASS FILTER
VCC
GND
COLOR DEMO
TINT
3.58 VCO
ACC
APC
KILLER
X-RAY PROTECT
1ST/2ND CROMA
BRIGHT
VERT. COUNT DOWN
HORIZ. COUNT DOWN
HORIZ. DRIVE
CONTRAST
PICTURE
VERT. DRIVE
SYNC. SEP.
AFC
32FH VCO
RF AGC
IF AGC
VIDEO AMP
BRIGHT
COLOR
TINT
PICTURE
RGB CONTRAST
SUB BRIGHT
RF AGC
9Vb
170V
18V
LD
FOCUS


IC2002
VHIHD7406//-1
INVERTER
5V
IC2001
VHISN74S04/-1
INVERTER
IC2003
VHIHD7426//-1
INTENSITY CONT.
IC2001
(4/6)
TERMINAL BOARD
(QTANZ0412CEZZ)
RA1
RA2
RA3
RA4
RA5
RA6
RA7
RA8
RA9
RA10
RA11
RA12
B G R INT
4 3 2 1
8 7 6 5
V H GND
D2001-2008
7.5V ZENNER
EX0161CEZZ
AUDIO INPUT (RGB)
GND
POSITIVE
RGB H-POSITION
NEGATIVE
RB1
RB2
RB3
RB4
RB5
RB6
IC2004
VHISN74LS08-1
INTENSITY &
SYNC DET.
IC2001 (2/6)
IC2201
VHIHD74LS136P
H/V MIXER
IC2201 (2/4)
IC2202
VHIHD74LS221/
H-POSI. CONT.
R.G.B SUB H-POSI.
PWB-C
(DUNTK3969DE02)
THIS AREA IS
COLD SIDE
THIS AREA IS
HOT SIDE
RL1
RL2
RL3
M1
M2
K2004
TO T701
TO PWB-A P4
L702
CILG0229CE
POR2201
RMPTP0030CEZZ

WAVEFORMS

WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated rainbow color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. ⊂► *indicates wave form check points (See chart, waveforms are measured from point indicated to chassis ground.)*



NOTE:

1. *The unit of resistance "ohm" is omitted (K: 1000 ohms, M:1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μF, unless otherwise noted P : μμF.*
4. *(G) indicates ±2% tolerance may be used.*
5. ⏚ *indicates line isolated ground.*
6. ⏚ *indicates hot ground.*

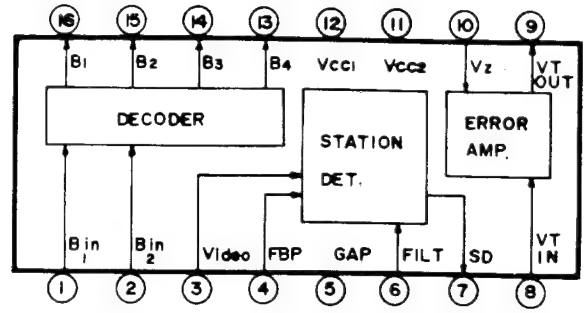
VOLTAGE MEASUREMENT CCNDITIONS:

1. *All DC voltages are measured with AC voltmeter connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μV B & W or Color signal.*

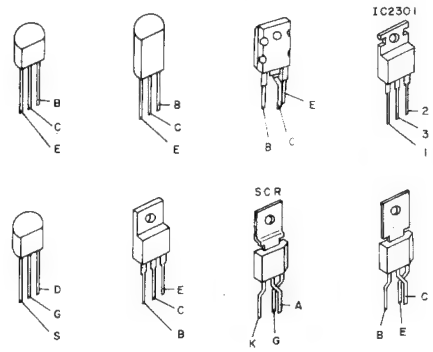
⚠ AND SHADED COMPONENTS = SAFETY RELATED PARTS. ▲ MARK = X-RAY RELATED PARTS.

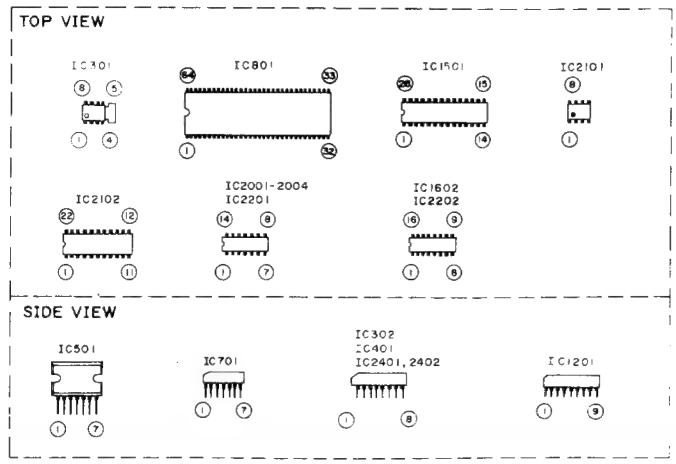
This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

BLOCK DIAGRAM OF IC1401

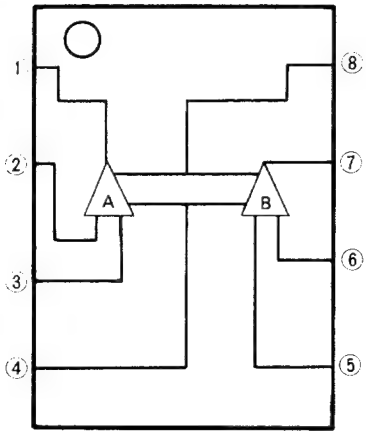


SOLID STATE DEVICE BASE DIAGRAM

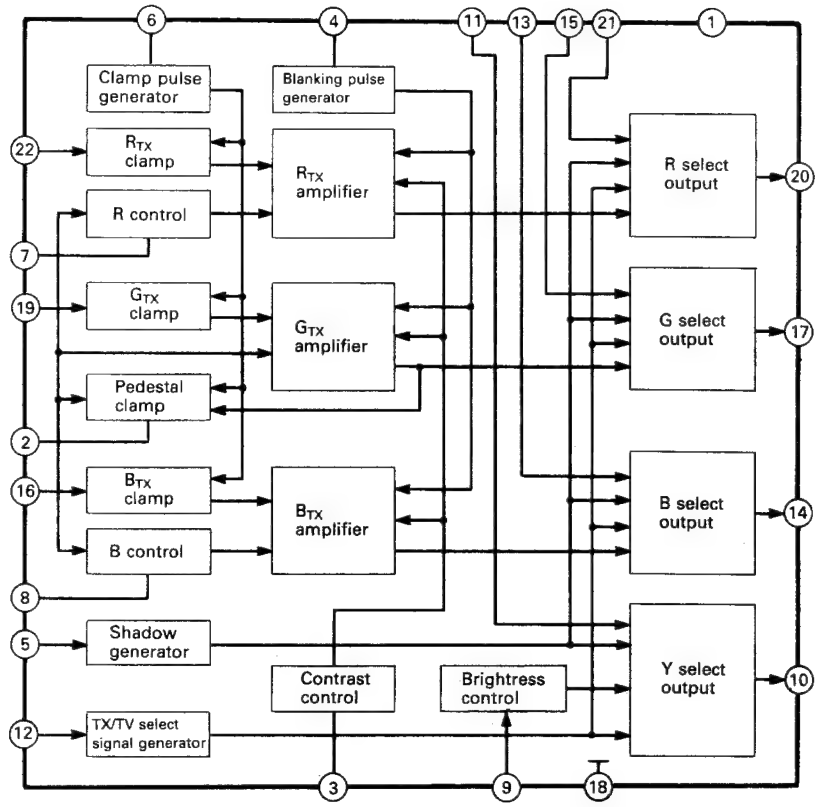




IC2101 (VHINJM4558D-1)



IC2102 (RH-IX0450CEZZ)



• INDICATION OF VOLTAGE AT SWITCHING TV/VIDEO

REF No.	TV/VIDEO	E (V)	C (V)	B (V)
Q1201	TV	3.4	0	3.5
	VIDEO	5.5	8.9	8.4
Q1202	TV	0	12.3	0
	VIDEO	8.3	12.3	8.9

REF No.	TV/VIDEO	③ Pin
IC302	TV	0
	VIDEO	5.2
IC401	TV	0
	VIDEO	5.2

REF NO / PIN / COLOR	IC2001													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
INTEN WHITE	1.1	2.9	1.1	2.9	3.0	1.0	0	1.1	3.1	1.1	3.1	1.1	3.1	5.0
R	1.0	2.9	3.6	0.1	0.3	3.6	0	3.6	0.3	1.0	3.0	3.6	0.3	5.0
G	3.6	0.2	1.0	2.9	0.3	3.6	0	1.0	3.0	3.6	0.3	3.6	0.3	5.0
B	3.6	0.2	3.6	0.2	3.0	1.0	0	3.6	0.3	3.6	0.3	3.6	0.3	5.0
BROWN	1.0	2.9	1.0	2.9	0.3	3.6	0	1.0	3.0	1.0	3.0	3.6	0.3	5.0
BLACK	3.6	3.6	3.6	0.2	0.3	3.6	0	3.6	0.3	3.6	0.3	3.6	0.3	5.0

REF NO / PIN / COLOR	IC2002													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
INTEN WHITE	0	–	0	–	0	–	0	6.1	1.0	6.1	1.1	6.1	1.1	5.0
R	4.3	–	4.3	–	4.3	–	0	0.1	3.6	0.1	3.6	4.3	1.0	5.0
G	4.3	–	4.3	–	4.3	–	0	0.1	3.6	0.1	1.0	0.1	3.6	5.0
B	4.3	–	4.3	–	4.3	–	0	4.3	1.0	4.3	3.6	0.1	3.6	5.0
BROWN	4.3	–	4.3	–	4.3	–	0	0.1	3.6	0.1	1.0	0.1	1.0	5.0
BLACK	4.3	–	4.3	–	4.3	–	0	0.1	3.6	0.1	3.6	4.3	3.6	5.0

REF NO / PIN / COLOR	IC2003													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
INTEN WHITE	1.0	1.1	6.1	0.1	5.0	6.1	0	6.1	1.1	1.1	6.1	1.1	1.1	5.0
R	3.6	3.6	0.1	0.1	5.0	0.1	0	0.1	3.6	3.6	4.3	1.0	3.6	5.0
G	3.6	3.6	0.1	0.1	5.0	4.3	0	4.3	1.0	3.6	0.1	3.6	3.6	5.0
B	1.0	3.6	4.3	0.1	5.0	0.1	0	0.1	3.6	3.6	0.1	3.6	3.6	5.0
BROWN	3.6	3.6	0.1	3.4	5.0	0.1	0	2.5	1.0	3.6	4.3	1.0	3.6	5.0
BLACK	3.6	3.6	0	0.1	5.0	0.1	0	0.1	3.6	3.6	0.1	3.6	3.6	5.0

REF NO / PIN / COLOR	IC2004													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
INTEN WHITE	1.1	5.0	0	0	3.4	0.1	0	3.4	2.9	2.9	0	1.0	1.1	5.0
R	3.6	5.0	4.3	0	0.1	0.1	0	0.1	0.1	2.9	0	3.6	3.6	5.0
G	3.6	5.0	4.3	0	0.1	0.1	0	0.1	2.9	0.2	0	3.6	3.6	5.0
B	3.6	5.0	4.3	4.3	0.1	0.1	0	0.1	0.2	0.2	4.3	1.0	3.6	5.0
BROWN	3.6	5.0	4.3	0	3.4	3.4	0	3.4	2.9	2.9	0	3.6	3.6	5.0
BLACK	3.6	5.0	4.3	0	0.1	0.1	0	0.1	0.2	3.6	0	3.6	3.6	5.0

Ref. No.	Part No.	★	Description
▲⚠ C610, ▲⚠ 611, ▲⚠ 612	VCFPPC3CA182J	J	0.0018 1.6kV Metalized Polypro
C613	VCFPPD2DB334J	J	0.33 200V Metalized Polypro
⚠ C621	VCKYPA2HB272K	J	0.0027 500V Ceramic
⚠ C622	VCEAAH2EW226M	J	22 250V Ceramic
▲⚠ C630	VCQYPU3SB501K	J	500p 3kV Ceramic
⚠ C701	RC-QZ019DCEZZ	J	0.22 AC125V Mylar
C702 | 705	VCKYPB2HE103P	J	0.01 500V Ceramic
⚠ C706	RC-EZ0141CEZZ	J	680 200V Electrolytic
C707, 708, 710, 715, 716, 732, 733	VCKYPA2HB471K	J	470p 500V Ceramic
C709	VCKYPA2HB332K	J	0.0033 500V Ceramic
⚠ C711	VCEAAH2CW107M	J	100 500V Electrolytic
C713	VCQPSB2DA473K	J	0.047 200V Polypro Film
▲⚠ C714	VCQYSH1HM822K	J	0.0082 50V Mylar
C717, ⚠ 720, 1502	VCEAAA1CW337M	J	330 16V Electrolytic
C718, 721	VCKYPA2HB152K	J	0.0015 500V Ceramic
C719	VCKYPA2HB392K	J	0.0039 500V Ceramic
C726	VCEAAH1VW108M	J	1000 35V Electrolytic
⚠ C729	RC-KZ0030CEZZ	J	3300p AC125V Ceramic
C815	VCE9AA1HW225M	J	2.2 50V Electrolytic (NP)

RESISTORS

⚠ R468	VRS-SV2HC103J	J	10k	1/2W	Oxide Film
⚠ R480	VRS-VV3LB220J	J	22	3W	Oxide Film
⚠ R512, ⚠ 715, ⚠ 716	VRN-VV3AB1R0J	J	1	1W	Metal Film
R607	VRS-VV3LB470J	J	47	3W	Oxide Film
⚠ R609	VRN-VV3ABR33J	J	0.33	1W	Metal Film
⚠ R610	VRS-VV3DB271J	J	270	2W	Oxide Film
▲⚠ R614	VRD-RA2BE103J	J	10k	2W	Carbon
▲⚠ R615	VRD-RA2BE102J	J	1k	1/8W	Carbon
▲⚠ R616	VRD-RA2BE562J	J	5.6k	1/8W	Carbon
▲⚠ R617	VRS-SV2HC100J	J	10	1/2W	Oxide Film
▲⚠ R621	VRD-RA2EE270J	J	27	1/4W	Carbon
▲⚠ R622	VRD-RA2BE153J	J	15k	1/8W	Carbon
⚠ R702	VRW-KV3NC2R7K	J	2.7	7W	Cement
⚠ R705	VRS-VV3LB331J	J	330	3W	Oxide Film
⚠ R706	VRS-SV2HC151J	J	150	1/2W	FR Oxide Film
▲⚠ R710	VRD-RA2EE104G	J	100k	1/4W	Carbon
▲⚠ R712	VRD-RA2BE683J	J	68k	1/4W	Carbon
▲⚠ R713	VRD-RA2EE562G	J	5.6k	1/4W	Carbon
⚠ R717	VRS-VV3DB330J	J	33	2W	Oxide Film
R718	VRS-VV3LB820J	J	82	3W	Oxide Film
⚠ R720	VRN-VV3AB1R5J	J	1.5	1W	Metal Film
R725	VRS-VV3DB221J	J	220	2W	Oxide Film
⚠ R729	VRC-UA2HG105K	J	1M	1/2W	Solid
R732	VRS-VV3DB101J	J	100	2W	Oxide Film

Ref. No.	Part No.	★	Description
⚠ R1601	VRS-VV3DB223J	J	22k 2W Oxide Film
⚠ R1607	VRS-VV3AB820J	J	82 1W Oxide Film
⚠ R1608	VRS-VV3DB151J	J	150 2W Oxide Film
RR1501	RMPTC0128CEZZ	J	22k x 7 pcs. Resistor Arrey
RR1502, 1503	RMPTC0135CEZZ	J	22k x 4 pcs. Resistor Arrey

RELAY

⚠ RY701	RRLYU0018CEZZ	J	Power Relay

SWITCHES

SW601, 701	QSW-B0006CEZZ	J	H-Position Aging
SW1101, 1102, 1103, 1104, 1105	QSW-K0025CEZZ	J	CH. Up CH. Down Volume Up Volume Down TV/Video
SW1106	QSW-K0020CEZZ	J	Power
SW1107	QSW-S0062CEZZ	J	TV/STD/HRC/IRC
SW1108	QSW-B0006CEZZ	J	AFT
SW1109	QSW-P0405CEZZ	J	RGB

JACK

J301	QJAKJ0004CEZZ	J	Earphone

MISCELLANEOUS

⚠ F701	QFS-B4021GEZZ	J	Fuse 4A AC 125V
	QFSHD1002CEZZ	J	Holder, F701 (2 Used)
FB301	RBLN-0036CEZZ	J	Bead Ferrite
FB601, 602, 701	RBLN-0037CEZZ	J	Bead Ferrite
FB603	RBLN-0020CEZZ	J	Bead Ferrite
	RRMCU0157CEZZ	J	R/C Reciever

PWB-B DUNTK3863DE02

TRANSISTORS

Q851 | 853	VS2SC2068LB1E	J	2SC2068

CONTROLS

R854 859, 864,	RVR-B4732CEZZ	J	5k(B)	Red Bias Green Bias Blue Bias
R860, 865	RVR-B4727CEZZ	J	300(B)	Green Drive Blue Drive

CAPACITOR

C855	RC-KZ0016CEZZ	J	0.01	1.4kV	Ceramic

Ref. No.	Part No.	★	Description
RESISTORS			
⚠ R867, ⚠ 869, ⚠ 871	VRS-VV3DB682J	J	6.8k 2W Oxide Film
MISCELLANEOUS			
S851	QSõCV0829CEZZ	J	Socket—CRT
FB851	RBLN-0010CEZZ	J	Bead Ferrite

PWB-C DUNTK3969DE02

INTEGRATED CIRCUITS			
IC2001	VHi SN74S04/-1	J	
IC2002	VHi HD7406//-1	J	
IC2003	VHi HD7426//-1	J	
IC2004	VHi SN74LS08-1	J	
IC2101	VHi NJM4558D-1	J	
IC2102	RH-i X0450CEZZ	J	
IC2201	VHi HD74LS136P	J	
IC2202	VHi HD74LS221/	J	
IC2301	RH-i X0638CEZZ	J	
IC2401, 2402	VHi LA7016//-1	J	
TRANSISTORS			
Q2001, 2002, 2003, 2004, 2005, 2104, 2301	VS2SC1815YW-1	J	2SC1815(Y)
Q2101, 2102, 2103, 2302, 2303, 2304	VS2SA1015Y/1E	J	2SA1015(Y)
DIODES			
D2001 | 2008	RH-EX0161CEZZ	J	Zener Diode
D2009, 2010, 2011, 2101, 2102, 2103, 2107, 2201, 2301, 2302	VHD1SS119//1E	J	1SS119
D2303, 2304, 2305	RH-EX0047CEZZ	J	Zener Diode

Ref. No.	Part No.	★	Description
CONTROLS			
R2121, 2129	RVR-B5137CEZZ	J	5k(B) Sub Contrast R.G.B. Pedestal Adj.
R2202, 2135, 2136	RVR-B5138CEZZ	J	10k(B) R.G.B. Sub Horiz. Position Blue Bias Adj. Red Bias Adj.
CAPACITORS			
C2101, 2102, 2103	VCE9AA1HW105M	J	1 50 Electrolytic (NP)
C2202	VCQPPB2JB182J	J	0.0018 630V Polypro Film
C2209	VCEAAA1AW227M	J	220 10 Electrolytic
C2301	VCEAAA1CW337M	J	330 16V Electrolytic
C2402	VCE9AA1HW225M	J	2.2 50V Electrolytic (NP)
RESISTOR			
R2028	VRS-VV3AB471J	J	470 1W Oxide Film
SWITCH			
SW2301	QSW-S0023GEZZ	J	Switch
MISCELLANEOUS			
⚠POR2201	RMPTP0030CEZZ	J	Positive Coefficient Thermistor

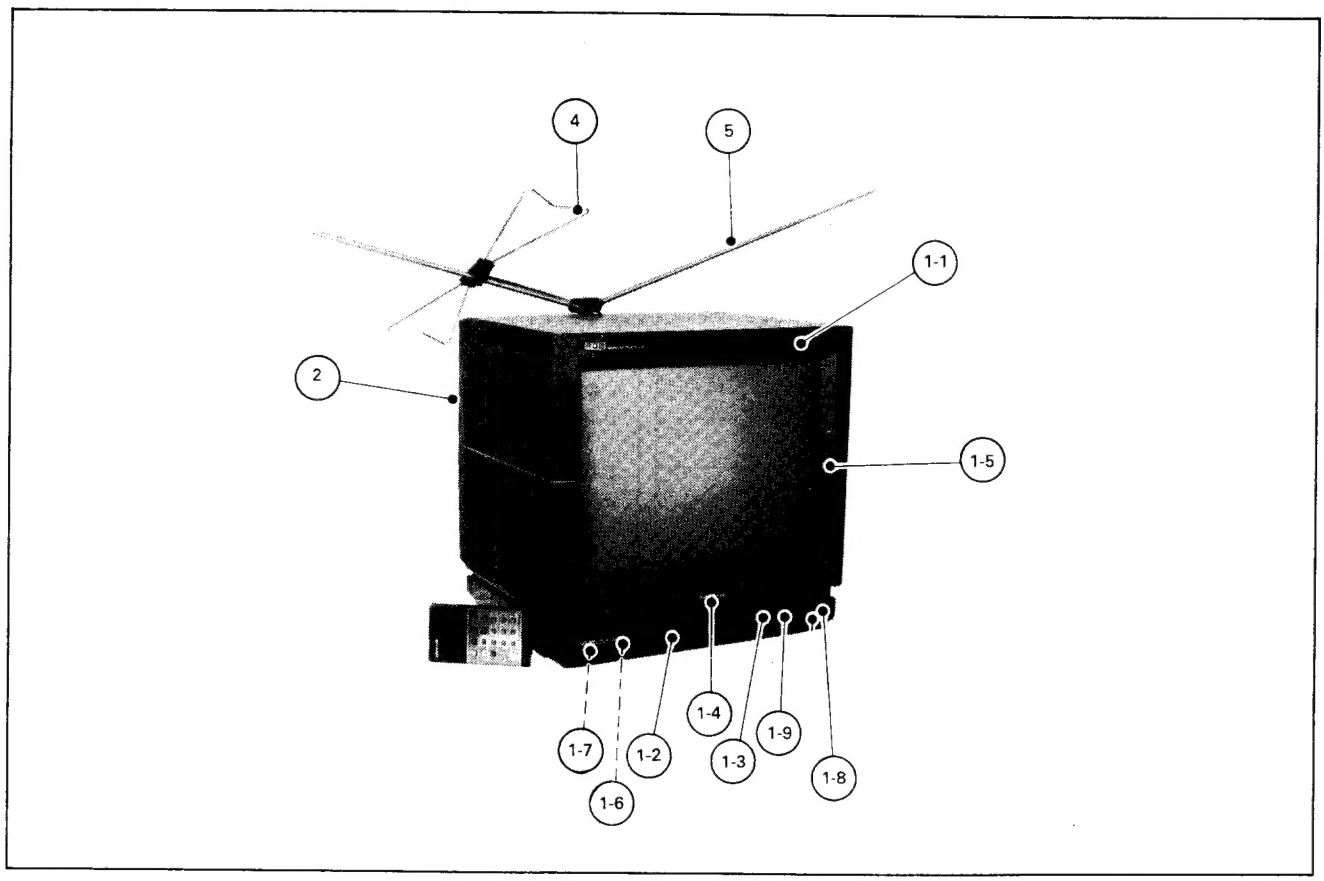
MISCELLANEOUS PARTS

⚠	QACCD3011CESA	J	AC Line Cord
SP1	VSP0080P-A0WA	J	Speaker 16 ohm
	PSPAG0031CEZZ	J	Wedge (Gum), Yoke Positioning (3 Used)
	QTANZ0412CEZZ	J	Antenna Terminal Board (Complete Assembly)
	RRMCG0390CESA	J	R/C Transmitter
	RUNTK0076CEZZ	J	Antenna Adapter

REMOTE CONTROL TRANSMITTER PARTS RRMCG0390CESA

	GCABA0065AASH	J	Cabinet, Top
	GCABB0057AASB	J	Cabinet, Bottom
	HPNLH0283PASA	J	Indication Plate
	GCõVH0049PASB	J	Battery Cover
	PFiLW0096PASA	J	Osc. Filter
	MSPRP0236PASA	J	Rubber Key
IC3001	RH-iX0360PAZZ	J	IC
D3001	RH-PX0109PAZZ	J	LED
D3002, 3003	VHD1S1555//1A	J	1S1555
Q3001	VS2SC2120Y/-A	J	2SC2120Y
CF3001	RFiLF0010PAZZ	J	Ceramic Osc. (KBR455BTL)

Ref. No.	Part No.	*	Description
CABINET PARTS			
1	CCABA1543CEK1	J	Cabinet Complete, Front
1-1	Not Available	J	Cabinet, Front
1-2	GDöRF1455CEKA	J	Door
1-3	GMADT0214CEKA	J	Window A
1-4	HBDGB1001GESA	J	Badge, "SHARP"
1-5	HDECQ0249CESA	J	Decoration Plate, Front
1-6	Hi NDM2437CESA	J	Indication Metal, In Door
1-7	Hi NDP2209CEKA	J	Indication Metal
1-8	JBTN-1304CEKB	J	Button, Power
1-9	GMADT0210CEKA	J	Window B
2	GCABB1559CEKA	J	Cabinet, Rear
4	QANTL0038CEZZ	J	Antenna, UHF
5	QANTR0057CEZZ	J	Antenna, Rod



Ref. No.	Part No.	★	Description
D602	RH-DX0101CEZZ	J	RF1
D603, 604	RH-DX0105TAZZ	J	TVR1J(TP)
D605, 1510	RH-EX0116GEZZ	J	Zener Diode
▲⚠ D606	RH-DX0130CEZZ	J	EU-Z
▲⚠ D607	RH-EX0091CEZZ	J	Zener Diode (HZ22-01T2)
▲⚠ D608	RH-EX0130CEZZ	J	Zener Diode (HZ22-3T2)
⚠ D609	RH-DX0086TAZZ	J	RH1S
D615	RH-EX0200CEZZ	J	Zener Diode (RD12E-T2)
⚠ D705	RH-EX0106CEZZ	J	Zener Diode (05Z82)
⚠ D706, ⚠ 708	RH-DX0131CEZZ	J	EU-1
⚠ D707	RH-DX0181CEZZ	J	
D710	RH-EX0193CEZZ	J	Zener Diode (RD11EB3)
D711	RH-DX0200CEZZ	J	1D4B42
D713	RH-EX0047CEZZ	J	Zener Diode (RD12E)
D1101 | 1107, 1115, 1116, 1117, 1121, 1122, 1126	RH-EX0161CEZZ	J	
D1127	RH-PX0119CEZZ	J	RGB Indicator
D1201	RH-PX0127CEZZ	J	LED
D1211	RH-EX0101CEZZ	J	Zener Diode (RD2.7EL1)
D1301, 1508	RH-EX0103CEZZ	J	Zener Diode (RD5.6EB3)
D1603	RH-EX0038CEZZ	J	Zener Diode (RD12F)
D1604, 1802	RH-EX0131CEZZ	J	Zener Diode (RD5.1E)
▲⚠ SCR701	VHR3S4M/ / LB1E	J	Silicon Controlled Rectifier
	or		
	VHSCR3AMZ8LB1	J	

PACKAGE CIRCUITS

CF301	RFiLC0001CEZZ	J	Ceramic Filter, Sound Take Off
CF401	RFiLC0013CEZZ	J	Ceramic Filter, 4.5MHz Trap
CF601	RFiLA0005CEZZ	J	Ceramic Filter, 503kHz
SF201	RFiLC0042CEZZ	J	SAW Filter, PIF
X801	RCRSB0005CEZZ	J	Crystal, 3.58MHz Osc.
X1501	RCRSB0013CEZZ	J	Crystal, 4.5MHz Osc.
M801	RMPTA0058CEZZ	J	Compositeness Parts

COILS AND TRANSFORMERS

L201, 203	VP-RFR82K0000	J	0.82μH
L202	VP-MK2R2K0000	J	2.2μH
L205	VP-RFR56K0000	J	0.56μH
L206	RCiLi0448CEZZ	J	PIF Detector
L207	RCiLi0392CEZZ	J	AFT
L301	VP-MK220K0000	J	22μH
L303	RCiLi0419CEZZ	J	Sound Detector
L401	VP-MK100K0000	J	10μH
L402	VP-MK150K0000	J	15μH
L403	VP-öF151K0000	J	150μH
L404	RCiLZ0550CEZZ	J	Delay Line
L405	RCiLP0073CEZZ	J	180MHz, Filter
L406, 1201, 1501, 1502, 1601	VP-MK100K0000	J	10μH
L601	RCiLZ0527CEZZ	J	Linearity Coil
L602	VP-DF270K0000	J	27μH
L604	VP-DF100K0000	J	10μH
⚠ L701	RCiLF0087CEZZ	J	Line Filter
L801	VP-öF220J0000	J	22μH
DL401	RCiLZ0498CEZZ	J	Comb Filter

TRANSFORMERS

⚠ T303	RTRNS0086CEZZ	J	Sound Output
⚠ T601	RTRNZ0168CEZZ	J	Horizontal Driver
▲⚠ T602	RTRNF1502CEZZ	J	Horizontal Output (W/Focus and Screen)
⚠ T701	RTRNP0363CEZZ	J	Power Transformer
T801	RCiLV0132CEZZ	J	Band Pass Filter

CONTROLS

R214	RVR-B4733CEZZ	J	10k	RF AGC
R216	RVR-B5142CEZZ	J	100k	AFT
R462	RVR-B5245CEZZ	J	Controls Unit, Bright/Color/Tint/ Picture	
R483	RVR-B5138CEZZ	J	10k	Sub Bright
R514	RVR-B5135CEZZ	J	2k	Vertical-Size
▲⚠ R711	RVR-B5134CEZZ	J	1k	120V Adj.

CAPACITORS

C209, 438, 442, 1204, 1513, 1608	VCEAAA1CW477M	J	470	16V	Electrolytic
C308, 618	VCEAAA1AW337M	J	330	10V	Electrolytic
C317, 432	VCEAGA1CW337M	J	330	16V	Electrolytic
C319, 608	VCEAAA1EW107M	J	100	25V	Electrolytic
C335	VCEAGA1CW108M	J	1000	16V	Electrolytic
C406	VCE9AA1CW476M	J	47	16V	Electrolytic (NP)
C407, 614, 730	VCE9AA1HW105M	J	1	50V	Electrolytic (NP)
C424, 491	VCCSPA2HL470J	J	47p	500V	Ceramic
C427	VCSATA1VE475K	J	4.7	35V	Tantalum
C504	VCEAAA1VW107M	J	100	35V	Electrolytic
⚠ C505	VCEAAA1VW476M	J	47	35V	Electrolytic
C506	VCKYPB3AB102K	J	0.001	1kV	Ceramic
C507	VCSATA1VE105K	J	1	35V	Tantalum
C509	VCSATA1VE684K	J	0.68	35V	Tantalum
C512	VCEAAH1EW108M	J	1000	25V	Electrolytic
C604	VCCSPA2HL100D	J	10p	500V	Ceramic

REPLACEMENT PARTS LIST

SAFETY NOTE — Components marked with a (⚠) have specical characteristics important to safety. Before replacing any of these components, read carefully the SAFETY NOTICE on page 3 of the Service Manual. Components marked with an (▲) are related to X-Ray Protection circuit.
HOW TO ORDER REPLACEMENT PARTS — To have your order filled promptly and correctly, please furnish the following information:
1. MODEL NO. 2. PART NO. 3. DESCRIPTION

Contact your nearest SHARP Parts Distributor to order.
For location of SHARP Parts Distributor, Please call Toll-Free; 800-447-4700 (In Hawaii and Alaska, please contact local SHARP dealer).

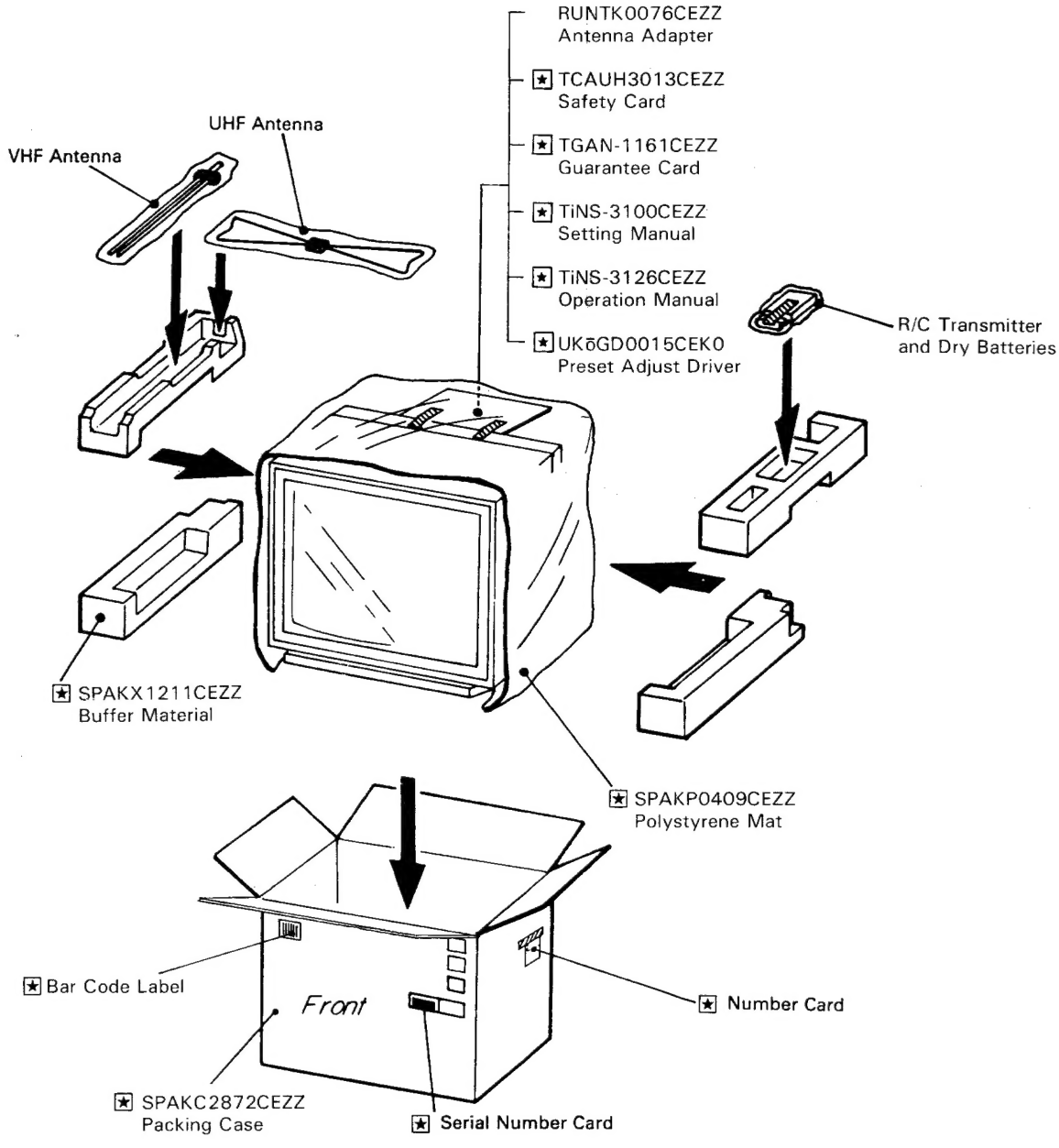
★ MARK: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description
PICTURE TUBE			
▲⚠ V101	VBA63JAR93X-1	J	CRT
▲⚠ DY601	RCiLH1349CEZZ	J	Deflection Yoke
⚠ L702	RCiLG0229CEZZ	J	Degaussing Coil
	PMAGF3006CEZZ	J	Magnet Ass'y—Purity & Static Convergence
PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)			
PWB-A	DUNTK4557DE01	—	Mother Unit
PWB-B	DUNTK3863DE02	—	CRT Unit
PWB-C	DUNTK3969DE02	—	R.G.B. Unit
PWB-A DUNTK4557DE01			
TUNER			
NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.			
⚠	VTUVTS-7UKP/ /	J	110 Channel Varactor Tuner
INTEGRATED CIRCUITS			
IC301	RH-iX0054CEZZ	J	
IC302	VHiLA7016/ /-1	J	
IC401	VHiLA7016/ /-1	J	
⚠ IC501	RH-iX0238CEZZ	J	
▲⚠ IC701	RH-iX0137CEZZ	J	
▲⚠ IC801	RH-iX0600CEZZ	J	
IC1201	RH-iX0260CEZZ	J	
IC1501	RH-iX0692CEZZ	J	
IC1602	VHiUPC1486C-1	J	
TRANSISTORS			
Q201	VS2SC1906/ /1E	J	2SC1906
Q202, 703	VS2SC1815GW-1	J	2SC1815(GR)
Q401, 402, 405, 801, 802, 1202, 1301, 1801	VS2SA1015YW-1	J	2SC1815(Y)
Q403, 404, ⚠ 704, 1201	VS2SA1015Y/1E	J	2SA1015(Y)
Q406	VS2SA854-Q/1E	J	2SA854(Q)
	or		
	VS2SA562Tö/-1	J	2SA562T(ō)
Q408	VS2SC2236Y/-1	J	2SC2236(Y)
Q414	VS2SC1815YW-1	J	2SC1815(Y)
	or		
	VS2SC454-C/1E	J	2SC454(C)
Q601	VS2SC2655Y/-1	J	2SC2655(Y)
⚠ Q602	VS2SD1426/ /1E	J	2SD1426
Q702	VS2SC1983/ /-2	J	2SC1983
Q705	VS2SC2002-K1A	J	2SC2002
Q1501	VS2SA1015G/1E	J	2SA1015(GR)
DIODES			
D301, 302, 401, 405, 406, 408, 409, 410, 411, 413, 414, ▲⚠ 612, 614, 616, 709, 714, 801, 802, 803, 1108 | 1114, 1118, 1119, 1120, 1123, 1124, 1125, 1202 | 1210, 1212, 1501 | 1507, 1509	VHD1SS119/ /1E	J	1SS119
D404	VHD1N34A/ / /-1	J	1N34A
D415	RH-EX0047TAZZ	J	Zener Diode
⚠ D501, 601, 610, ⚠ 701 | ⚠ 704	RH-DX0110CEZZ	J	S5277G
⚠ D502	RH-DX0132CEZZ	J	EU-1A

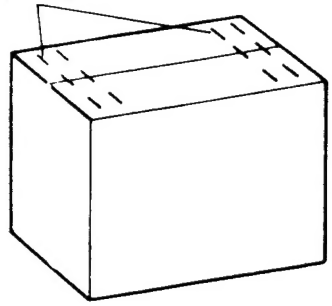
PACKING OF THE SET

- **Setting positions of the knobs**

Brightness control	5/10	TV/CATV switch	TV
Tint control	5/10	RGB/VIDEO	VIDEO
Color control	5/10	RGB contrast control	10/10
Picture control	10/10	Sync polarity switch	POS
AFT switch	ON	H-position control	5/10



Use 12 staples to fix the packing case.



★ : Not replacement items.

T5475-S
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